



A.D. 1845 N° 10,596.

S P E C I F I C A T I O N

OF

GIACOMO SILVESTRI.

PRESERVING ANIMAL AND VEGETABLE
SUBSTANCES.

L O N D O N :

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Preserving Animal and Vegetable Substances.

SILVESTRI'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GIACOMO SILVESTRI, of Naples, in the Kingdom of Naples, Physician, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Royal Letters Patent under the Great Seal of Great Britain, bearing date at
5 Westminster, the Seventh day of April, in the eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Giacomo Silvestri, my executors, administrators, and assigns, Her especial license, full power, sole privilege, and authority, that I, the said Giacomo Silvestri, my executors, administrators, and assigns, or such others as I the said
10 Giacomo Silvestri, my executors, administrators, or assigns, should at any time agree with, and no others, from time to time and at all times' during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, and in the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and
15 also in all Her said Majesty's Colonies and Plantations abroad, the Invention of "CERTAIN IMPROVEMENTS IN PRESERVING ANIMAL AND VEGETABLE SUBSTANCES FROM DECAY," partly communicated and partly invented by myself; in which said Letters Patent is contained a proviso, that I, the said Giacomo Silvestri, shall cause a particular description of the nature of the said Invention, and in
20 what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery, within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

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NOW KNOW YE, that in compliance with the said proviso, I the said Giacomo Silvestri, do hereby declare the nature of the said Invention, and the manner in which the same is to be performed, are particularly described and ascertained as follows, that is to say:—

For a long while the thorough drying or dessication of the organic bodies to 5
be preserved has been employed as the best mode for their preservation, but
until now the action of the conservative agents employed for that purpose have
not only sensibly affected their shape, but still more when that said action did
not quite dessicate the bodies by shrivelling them, it left at the same time a
suppleness or elasticity, which I consider as hindering their perfect preserva- 10
tion, especially when it affects other parts besides cartilages. Thus the
chloride of mercury (corrosive sublimate), used by itself or modified by the
addition of hydrochlorate of ammonia, possesses a conservative quality, the proofs
of which are to be found in several museums, but such results are far from
being satisfactory; in reality, the bodies are shrunk in or curled up, having 15
lost their primitive shape, and if some parts of that form still exist it is gene-
rally to the detriment of their preservation, and from that cause proceeds all
the inconveniences resulting from incomplete preservation; by my processes
I have found the means of availing myself of the preserving without the defor-
mative actions of the matters, by mixing with them other substances, correcting 20
that second action, that is to say, preserving to the body its primitive shape.
I have, therefore, by means of my preparation, rendered solid the bodies I am
to preserve, by giving to certain parts of them nearly the hardness of stone,
preserving to others the kind of flexibility inherent to their nature, and by
leaving others in their natural or nearly natural state, according to their essence, 25
but always without any alteration in the shape or any detriment to their pre-
servation, which is equal so that of the solidized parts. The solidification I obtain
cannot, therefore, be compared to the more or less complete dessication, since I
do not only preserve to their bodies their shapes, but I preserve them also from
any chance of being decomposed, even in some of their parts. The durability 30
of that preservation is, besides, without limits. The principle of my process is
founded on the introduction, by means of the concurrence and action of con-
servative agents, whatever they may be, of some bodies, hard and solid, or
capable of becoming solid through their inherent qualities. These bodies are
lodged mechanically into the interstices, pores, and cavities which the organic 35
bodies possess; these also are more or less filled with matters capable of being
decomposed by the action of the conservative agents, and which decomposable
matters are replaced by the herein-before-mentioned inert bodies. The pre-
sence of these, while it prevents the deformation of the bodies operated upon,

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assists their solidification, in consequence of the separation produced by the interposition of the inert bodies amongst the molecules of the organic bodies. Such an action facilitates forthwith their dessication, and afterwards their solidification and aggregation to the solid particles introduced as above stated
5 by the operation.

Having laid down the principle of the process on which rest not only the several ways of operation I have employed, but also those of all others, other means by which that principle may be carried into execution by following its bases even differently, I will describe, as an exemplification, a formula of sub-
10 stances and a mode of preparation which I have found uniting the best conditions to secure a perfect success :—I take and mix together one hundred parts of bichloride of mercury (corrosive sublimate), one hundred parts of powdered selix, one hundred parts of subcarbonate of lime, twenty-five parts hydrochlorate of ammonia, seventeen parts chloride of lead, seventeen parts chloride of zinc.
15 I pound them and pass them through a silken sieve ; I throw them into a basin or any convenient vessel, adding to them a quantity of water, sufficient to form a sort of syrrup ; into that bath I place the body to be operated upon, taking care that the liquor should always cover it, and for that purpose I successively add a quantity of water, equal to that evaporated afterwards during the operation.
20 I would observe, the vessel I make use of must be lined with platinum, enamelled, or made of strongly varnished earthenware, so as not to be acted on by the above substances. To obtain a more complete mixture of all the substances hereinbefore mentioned, I lightly heat the bath, which I abandon afterwards to the atmospheric influence, however, according to the progress of the operation. I can
25 increase the effervescence of the bath by adding to it some drops of sulphuric acid. The length of time required for this immersion naturally varies according to the dimensions, the nature, and the essence of the bodies, that is to say, according to the greater or less facility which they have in absorbing the conservative matters. Thus these bodies, which contain grease, are more disposed for
30 absorption, and the human body will also require more time than an insect. Therefore, if five or six months, which are usually required to obtain the complete and general solidification of the first, only five or six days are sufficient to obtain the same satisfactory result on the latter ; fifteen days are required for fish, one month for mollusques, and two months for reptiles. However,
35 the length of the operation will also vary according to the greater or less hardness required, and which I wish to give to the bodies I operate upon. However, as the operation may be conducted under several conditions resulting from different causes, such as the state of the atmosphere and others, it will be easy to ascertain when the asseration is completed, inasmuch as for the fishes

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and insects the specific gravity they have acquired will compel them to fall to the bottom of the vessel, and, as for the other bodies, their state of preparation will be ascertained by striking them slightly when in the bath with a stick; the sound they will emit will be in proportion to the more or less solidity they have attained. As the purpose of the bath, prepared as before stated, is to 5 introduce some hard bodies into the pores and into the cavities of the matter of the organic bodies by the action alone of the conservative agents, it is easy to conceive that the natural cavities of the bodies, the openings and the holes which naturally occur, cannot be filled up with the preparation composing the bath. To preserve the natural shape of a fish I introduce into its interior 10 some solid substance in powder, as sulphate of lime or other substance with which the conservative liquor is disposed to enter into combination. The processes already known and employed for the preservation of bodies may be employed in conjunction with the means by which I obtain a complete solidification. The position which the body acquires in its solidification will 15 depend on its position in the bath, and when once immersed it must not be touched any more. I suspend the body in the vessel to prevent it, in consequence of its weight, from becoming out of shape, and to allow the conservative solution to penetrate more easily into all its parts and on every side. I would observe that although the degree of solidification be in a direct ratio to the 20 greater or less time the body is immersed in the bath, the conditions I have herein-before mentioned are quite sufficient to give to the body a hardness equal to that of hard wood, and for certain other bodies really like that of stone capable of receiving a fine polish. I have prepared, according to my process, some livers, clots of blood, human hands, reptiles, to whom I gave the polish of 25 marble, and which could not be scratched by the nail, having at the same time the sound of an hardened body. When the immersed body has obtained the required degree of solidification, I take it out of the bath and wash it with alcoholized water, then dry it with some powder capable of absorbing the dampness, or with non-sized paper rags, or by means of a moderate temperature, having always to consider 30 for the use of these means the nature of the prepared body, the more or less smoothness of its surface, and its facility to alter or break; I varnish it afterwards with some diluted arabic gum, or such like non-colouring varnish, similar to those employed generally for similar operations, and too well known to require any particular description. I follow for the eyes the means generally em- 35 ployed and well known, preferring however, to proceed in preparing them before the immersion, and laying them into the bath. For the complete and perfect solidification of a corpse, I generally make upon it some incisions, which I close afterwards, and which greatly assist the introduction of the preserving

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preparation into all the internal parts. To prevent also that a discolouration should act upon the body when I take it out of the bath herein-before described, I immerse it into a second bath, and in which I allow it to remain from eight to ten days. I compose that second bath as follows :—Fifty parts of
5 hydrochlarate of soda; fifty parts of phosphate of soda; one hundred parts of pounded silex, to which I may add, if necessary, some salt of alum to prevent the fatty matters of the body passing through the skin; and to prevent still more the discolouring, I also put sometimes in that second as well as in the first bath some cinabar, or some other colouring substance agreeing with
10 the shade which cannot be entirely preserved. I follow after the use of that second bath the same process for drying and finishing the operation as I have before described. As according to my process a corpse, to obtain a perfect solidification, must remain during six months immersed in the preserving preparation, the vessel in which the body is immersed may have the form of a coffin
15 which, after having received the preserving preparation and the corpse, can be screwed down. From the experience I have had, I am inclined to believe that at the end of a year not only the absorption will be general and complete, and the solidification perfect, but no other preparation will be necessary unless the corpse is to be exhibited, in which case it must be varnished in the manner
20 before described, adding, however, to incolourous varnish, a small portion of starch to give to the corpse a more placid appearance. I can also accelerate my process of solidification by injecting into the body the preserving preparation before described, by means of suitable syringes, but this mode of operating requires care and attention to the effects of the liquor to regulate
25 accordingly the injections, which must be continued until the perfect and complete solidification. But that operation does not dispense with the immersion of the body into the bath of the preserving preparation, otherwise it could not be preserved from the effects of decomposition, or at least, from the alteration of some of the external parts. If my process by immersion
30 is slow in obtaining a perfect solidification, its effects are spontaneous for the preservation of the body in whatever state it may be when immersed into the bath. Thus a beginning of decomposition is immediately stopped, and if the conservative preparation does not cause it to disappear, it arrests any further progress, but the after solidification cannot take away the marks of it.

35 The vegetable substances to which the said Invention is applicable are leaves, flowers, and grasses, and for this purpose I make use of the following preparation, that is to say :—

To one part of pounded silex I add one thirtieth part of its weight of sulphate of ammonia, also in powder; when they are well mixed together I place

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into a convenient vessel, either of glass or earthenware, and capable of receiving the leaf, flower, or grass I wish to preserve from decay, a layer of the above described preparation; on that bed I lay the leaf, flower, or grass, which I cover softly and with care with a bed of the said preparation, introducing at the same time, with a spatula or other convenient instrument, into the internal 5 parts of the plant as much as possible of the said preparation. I place afterwards the vessel upon some sand lightly heated to help the complete dissuasion, taking care to keep the sand in the same degree of temperature during five or six days, a time quite sufficient to perform the operation. I take from the vessel the plant, shake it lightly, and then, with small iron pinchers, or any 10 such like instrument, I replace in their natural position any part of the plant which the operation or the laying might have put out of order.

And having now described the nature of my said Invention, and the manner of carrying the same into effect, I declare that what I claim as my Invention is the introduction into the cavities of organic matter hard substances by means 15 of liquids, and the mode in which the same is to be introduced.

2nd. The rendering available the preserving, and obviating the deforming action of certain agents by uniting them with the substances correcting such deforming action, as above described.

3rd. The preserving leaves, flowers, grasses, as above described. 20

In witness whereof, I, the said Giacomo Silvestri, have hereunto set my hand and seal, this Seventh day of October, in the year of our Lord One thousand eight hundred and forty-five.

GIACOMO (L.S.) SILVESTRI.

AND BE IT REMEMBERED, that on the same Seventh day of Oc- 25 tober, in the year above mentioned, the aforesaid Giacomo Silvestri came before our Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute in that case made and provided. 30

Inrolled the same Seventh day of October, in the year above written.

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